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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/806,349

03/22/2004

John Merchant

16435-0033U

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EXAMINER

TRAN, NHAN T

ART UNIT

PAPER NUMBER

2622

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DELIVERY MODE

07/10/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/806,349	Applicant(s) MERCHANT, JOHN	
	Examiner NHAN T. TRAN	Art Unit 2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 12-25 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12-19 is/are allowed.
- 6) ☒ Claim(s) 1,4,6,20 and 24 is/are rejected.
- 7) ☒ Claim(s) 2,3,5,7,21-23 and 25 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of invention I and subgroup IA in the reply filed on 2/7/2008 is acknowledged.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 4/23/2004 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Specification

3. Amendments to specification filed 2/7/2008 are accepted.

Claim Objections

4. Claim 3 is objected to because of misspelling of "confiugred" which should be corrected to read as -- configured --.

Claim 6 is also objected to because of recitation of "claim1" which should be corrected to read as -- claim 1 --.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 4, 6 & 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Merchant, John, "The Spatial Modulation Staring Sensor", Proceedings of IRIS Specialty Group on Passive Sensor, March 1997 (this reference is cited in the IDS filed 4/23/2004).

Regarding claim 1, Merchant discloses a system for scanning a target of interest (see abstract and introduction) comprising:

a high-resolution collecting optic (the front-end lens shown in Figs. 3 & 4);

a spatial modulation reticle (checkerboard reticle in Figs. 3 & 4) located in a high-resolution image plane of the collecting optic, the reticle being a temporally varying pattern in the image plane (see section 2.2 "Spatial Modulation Staring Sensor");

a demagnifying relay optic (rear-end lens 1mr optics shown in Figs. 3 & 4);

a primary small-format focal plane array (FPA) detector (IRFPA 256x256) located in the demagnified image plane that receives reticle-modified images and outputs image frames (see section 2.2 "Spatial Modulation Staring Sensor");

a processor that performs, with the image frames, balanced demodulation function that reduces image clutter where the target of interest is in motion (see section 2.3 "Baseline Modulation/Demodulation to section 3.0 "Spatial Modulation Design", it is

noted that "balanced demodulation function" is given its broadest interpretation as the baseline demodulation function for reducing the clutter where the target of interest, i.e., aircraft or missile, is in motion since the claim does not require a specific feature of such balanced demodulation function).

Regarding claim 4, Merchant also discloses the processor is adapted configured to perform enhanced detection of the target-of-interest in motion, wherein a derived motion of the target-of-interest based upon a detection scenario is used to adjust a motion of the reticle so as to generate a desired result (see section 2.3 to section 3.0).

Regarding claim 6, it is also seen in Merchant that the reticle includes a plurality alternating transmissive and non-transmissive cells (checkerboard reticle in Fig. 4) and wherein a size of each of the cells is defined by a desired instantaneous field-of-view (IFOV) and matches an achievable point spread function (PSF) of the high-resolution collection optic (see section 2.2 "Spatial Modulation Staring Sensor" in which the size of each of the cells is defined by a desired instantaneous field-of-view (IFOV) and *inherently* matches an achievable point spread function (PSF) of the high-resolution collection optic in order for the imaging system to function as disclosed).

Regarding claim 20, Merchant discloses that the processor is configured to identify a region of interest (target) and direct a high resolution sensor to magnify and further examine the region of interest (see Figs. 3-7 and section 2.2 to section 3.0).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Merchant, John, "The Spatial Modulation Staring Sensor", Proceedings of IRIS Specialty Group on Passive Sensor, March 1997 in view of Hornbeck, L. J., "Deformable-Mirror Spatial Light Modulators", Proceedings of SPIE vol. 1150, 1989.

Regarding claim 24, Merchant discloses that the spatial modulation reticle has a fixed cell pattern (Fig. 4) of opaque and transparent cells (see section 2.2) but Merchant does not explicitly disclose that an active device that provides independent control of each of the cells, the digital device including at least one of micromirror arrays, addressable membrane mirrors and pneumatic liquid crystals.

However, such active digital device is well known in the art for controlling individual cell to improve light modulation as taught by Hornbeck (see Introduction).

Therefore, it would have been obvious to one of ordinary skill in the art to implement an active control device in Merchant that provides independent control of each of the cells, the digital device including at least one of micromirror arrays,

addressable membrane mirrors and pneumatic liquid crystals so as to improve light modulation in view of Hornbeck above.

Allowable Subject Matter

9. Claims 12-19 are allowed.
10. Claims 2-3, 5, 7, 21-23 and 25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
11. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 12 & 16, the prior art of record fails to teach or fairly suggest the combination of all limitations of each of claims 12 and 16 that includes **"a foveal enhanced imaging (FEI) mechanism having an amplitude beamsplitter located either (a) just before or (b) after the reticle moving plane, to split off a fraction of a high-resolution image intensity; and a spectral band width or polarization component, for retaining the high-resolution image by routing it to one of either a secondary focal plane array detector or a shared portion of the primary FPA."**

Regarding claim 18, the prior art of record fails to teach or fairly suggest the combination of all limitations of 18 that includes **"a mechanism that employs spillover light that is otherwise lost in a transition from the large throughput collection optic and high resolution scene image at the reticle plane to the lower throughput relay optic and low resolution scene image that follows at the detector plane."**

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NHAN T. TRAN whose telephone number is (571)272-7371. The examiner can normally be reached on Monday - Friday, 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on (571) 272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Nhan T. Tran/
Primary Examiner, Art Unit 2622